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PTO/SB/21 (09-04)  
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	10/045,379
	Filing Date	January 15, 2002
	First Named Inventor	Jih Chung CHIANG
	Art Unit	2354
	Examiner Name	Kristen Droesch MULLEN
Total Number of Pages in This Submission	Attorney Docket Number	12684 B

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to TC
<input checked="" type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment/Reply	<input checked="" type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Change of Correspondence Address	<input type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Terminal Disclaimer	
<input type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> Request for Refund	
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> CD, Number of CD(s) _____	
<input type="checkbox"/> Reply to Missing Parts/Incomplete Application	<input type="checkbox"/> Landscape Table on CD	
<input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	Remarks	

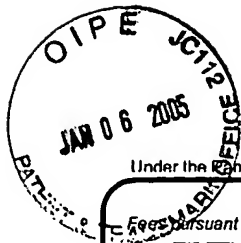
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	CHARLES E. BAXLEY, ESQUIRE		
Signature	<i>Charles E. Baxley</i>		
Printed name	CHARLES E. BAXLEY, ESQUIRE		
Date	January 4, 2005	Reg. No.	20,149

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature	<i>Charles E. Baxley</i>		
Typed or printed name	CHARLES E. BAXLEY, ESQUIRE	Date	01/04/05

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

BEST AVAILABLE COPY



Effective on 12/08/2004.

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

**FEE TRANSMITTAL  
For FY 2005**☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT (\$)** 130.00**Complete if Known**

Application Number	Not Yet Assigned
Filing Date	Simultaneously Herewith
First Named Inventor	Jih Chung CHIANG
Examiner Name	Unknown
Art Unit	Unknown
Attorney Docket No.	12684 B

**METHOD OF PAYMENT (check all that apply)**☒ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): \_\_\_\_\_☒ Deposit Account Deposit Account Number: 02-1435 Deposit Account Name: CHARLES E. BAXLEY

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

**2. EXCESS CLAIM FEES****Fee Description**

Each claim over 20 (including Reissues)

Each independent claim over 3 (including Reissues)

Multiple dependent claims

Fee (\$)	Small Entity Fee (\$)
50	25
200	100
360	180

**Total Claims** **Extra Claims** **Fee (\$)** **Fee Paid (\$)**

- 20 or HP = \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

HP = highest number of total claims paid for, if greater than 20.

**Indep. Claims** **Extra Claims** **Fee (\$)** **Fee Paid (\$)**

- 3 or HP = \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

HP = highest number of independent claims paid for, if greater than 3.

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 = _____	/ 50 = _____	(round up to a whole number) x _____		

**4. OTHER FEE(S)**

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): **Petition Fee****Fees Paid (\$)****\$130.00****SUBMITTED BY**

Signature	<i>Charles E. Baxley</i>	Registration No. (Attorney/Agent)	20,149	Telephone	(212) 791-7200
Name (Print/Type)	CHARLES E. BAXLEY, ESQUIRE			Date	01/04/05

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



12684 B  
CEB/jm  
04 Jan 04

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/045379  
First Named Applicant : Jih Chung CHIANG  
Filing Date : January 15, 2002  
Art Unit : 2354  
Examiner : Kristen Droesch MULLEN  
Title : PUMPING DEVICE FOR HELPING  
SEVER FAILING OF LEFT VENTRICLE  
OR HEART

**PETITION FOR RECONSIDERATION AND CORRECTION  
OF FILING DATE UNDER 37 CFR §§ 1.182 and 1.183**

Pursuant to 37 CFR §§ 1.182 and 1.183 Applicant hereby requests that its Application be accorded an earlier filing date of November 19, 2001.

Applicant filed the above-referenced United States Patent Application on November 19, 2001 by depositing the Application with the United States Postal Service as first-class mail, postage prepaid. In its Application Applicant claimed priority back to its Taiwanese Patent Application No. 089126683 filed on December 13, 2000. Notwithstanding its timely filing in the United States, Application was accorded a filing date of January 15, 2002, nearly two (2) months passed the mailing date and one (1) month after the 12-month deadline for foreign priority. Substantial delay in according a filing date to the Application presumably was caused by interruption of mail service to

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the USPTO following the tragic events of September 11, 2001 and the subsequent anthrax scare.

Applicant did not file its Application using the Express Mail procedure because, on Friday, November 16, 2001, the USPTO issued a notice that Express Mail service to the Patent Office's Washington, D.C. address had been suspended due to closure of the Brentwood, Maryland postal facility. See "Questions and Answers Concerning the Suspension of the "Express Mail" Services" annexed hereto as Appendix "1". As of the date on which Applicant mailed its Application to the USPTO--*November 19, 2001*--the Commissioner had not yet issued a notice informing practitioners and the public of any substitute mailing procedures for mailing applications to the PTO's Arlington, VA via express mail postal service. In fact, an alternate mailing procedure was not posted on the PTO's internet web site until Tuesday, November, 20, 2001; one (1) day after the date on which Applicant had mailed its Application via first-class mail to the PTO's Washington, D.C. address.

Enclosed herewith as Appendix "2" is a copy of Applicant's return receipt postcard showing the November 19, 2001 mailing date. Also enclosed herewith as Appendix "3" is a copy of Applicant's complete Application as submitted on November 19, 2001, including a copy of the original the Certificate of Mailing certifying that Applicant had filed its Application on November 19, 2001.

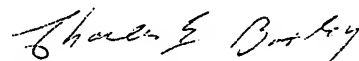
Events of September 11<sup>th</sup> and the anthrax scare that followed were not only difficult times for the PTO, they equally were difficult for the undersigned attorney whose law office is located a few blocks east of the World Trade Center in New York City. The Church Street Station post office near the World Trade Center and the undersigned's

law office had been permanently closed, armed military personnel and police were stationed on our streets and access in and out of the undersigned's law office was severely impaired in the weeks that followed September 11th. Moreover, following the anthrax scare many mail box receptacles in the vicinity could not be used to deposit mail or other large envelopes. Thus my law office staff was required to employ Herculean efforts to process daily mail into and out of this firm. Mail service was not only delayed at the PTO, but was equally delayed, misdirected, irradiated, mangled or otherwise destroyed throughout lower Manhattan. In short, my small office staff was overwhelmed by effects of mail disruptions following September 11<sup>th</sup>.

For the foregoing reasons and in view of the documents submitted herewith as Appendices 1 through 4, Applicant hereby requests that its filing date be adjusted to November 19, 2001; the date on which Applicant placed the subject Application in the care of the United States Postal Service. Consequence of not receiving an early filing date would be to deny Applicant priority to its co-pending Taiwanese Application No. 089126683 filed on December 13, 2000.

A check to cover the \$130.00 fee for this petition has been enclosed herewith. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account 02-1435.

Respectfully submitted,



---

Charles E. Baxley  
USPTO Reg. 20,149  
90 John Street – Third Floor  
New York, NY 10038  
Tel: (212) 791-7200

## APPENDIX "1"

**United States Patent and Trademark Office OG Notices: 01 January 2002**

Termination of the Suspension of the "Express Mail" Service  
of United States Postal Service for mail addressed to  
ZIP Codes 202xx through 205xx

On Friday, November 16, 2001, the United States Postal Service (USPS) temporarily suspended Express Mail service to Washington, D.C., ZIP Codes 202xx through 205xx (e.g., 20231). On Tuesday, November 20, 2001, the United States Patent and Trademark Office (USPTO) posted a notice on its Internet Web site (<http://www.uspto.gov/september11/uspsmaildisrup.htm>) establishing an Arlington, VA 22202 address for use on an emergency basis for patent-related correspondence being delivered to the USPTO by the USPS's Express Mail service.

On Thursday, November 29, 2001, the USPS indicated that this suspension of Express Mail service has been terminated. Since the USPS has terminated this suspension of Express Mail service, patent-related correspondence being delivered to the USPTO by the USPS (either by first class or Express Mail service) should now be addressed as set forth in 37 CFR 1.1(a)(1); that is, patent-related correspondence should now be addressed:

Assistant Commissioner for Patents  
Washington, DC 20231.

While the USPTO prefers that patent-related correspondence be addressed as set forth in 37 CFR 1.1(a)(1) (i.e., to the above Washington, DC 20231 address), the USPTO will continue to accept patent-related correspondence at the Arlington, VA 22202 address indicated in the notice published on November 20, 2001 on the USPTO's Internet Web site and treat such correspondence as if it were addressed as set forth in 37 CFR 1.1 for purposes of 37 CFR 1.8 and 1.10 until further notice.

Questions concerning this notice should be directed to Cynthia Nessler, Legal Advisor, Office of Patent Legal Administration at (703) 308-6906.

December 5, 2001

NICHOLAS P. GODICI  
Acting Under Secretary of  
Commerce for Intellectual Property and  
Acting Director of the United States  
Patent and Trademark Office

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### **Questions and Answers Concerning the Suspension of the "Express Mail" Service of United States Postal Service for mail addressed to ZIP Codes 202xx through 205xx**

On Friday, November 16, 2001, the United States Postal Service (USPS) temporarily suspended Express Mail service to Washington, D.C., ZIP Codes 202xx through 205xx (e.g., 20231). On Tuesday, November 20, 2001, the United States Patent and Trademark Office (USPTO) posted a notice on its Internet Web site (<http://www.uspto.gov/september11/uspsmaildisrup.htm>) establishing an Arlington, VA 22202 address for use on an emergency basis for patent-related correspondence being delivered to the USPTO by the USPS's Express Mail service. The USPTO received the following questions concerning the above-mentioned notice:

**Question (1): If I mail a new patent application to the USPTO by Express Mail (Post Office to Addressee) using the Arlington, VA 22202 address (U.S. Patent and Trademark Office, P.O. Box 2327, Arlington, VA 22202), will the application get to the USPTO?**

Answer: Yes. The patent application should get to the USPTO. The Arlington, VA 22202 address provided on the USPTO's Web site (U.S. Patent and Trademark Office, P.O. Box 2327, Arlington, VA 22202) is a USPTO P.O. box, and mail addressed to that P.O. box is just as likely to get to its destination (the USPTO's P.O. box) as mail addressed to the USPTO's Washington, DC address (the Washington, DC 20231 address) is to get to the USPTO.

**Question (2): If I mail a new patent application to the USPTO by Express Mail (Post Office to Addressee) using the Arlington, VA 22202 address (U.S. Patent and Trademark Office, P.O. Box 2327, Arlington, VA 22202), what will be the filing date of that application?**

Answer: The date indicated on the "date-in" portion of the Express Mail mailing label. 37 CFR 1.10(a) provides that correspondence received by the USPTO that was delivered by the USPS's Express Mail (Post Office to Addressee) service will be considered filed on the date of its deposit with the USPS (as shown by the "date-in" indicated in the Express Mail mailing label). 37 CFR 1.10(a) does not require that the correspondence be addressed in any particular manner (i.e., correspondence incorrectly addressed that is received by the USPTO and delivered by the USPS's Express Mail (Post Office to Addressee) service will still be considered filed on the date of its deposit with the USPS).

While 37 CFR 1.1 requires that patent-related correspondence be addressed to the USPTO's Washington, DC address, it does not provide for any sanction in the event that patent-related correspondence is not addressed to the USPTO's Washington, DC address. A party, however, may not (during usual circumstances) be able to take advantage of the provisions of 37 CFR 1.8 and 1.10(e) for patent-related correspondence not addressed to the USPTO's Washington, DC address.

**Question (3): Can the USPTO change its rules of practice by posting a notice on its Internet Web site?**

Answer: No. The USPTO, however, can suspend requirements of the regulations during extraordinary situations subject to such requirements as may be imposed. 37 CFR 1.183. Thus, the USPTO did not "change" the correspondence address set out in 37 CFR 1.1 from the USPTO's Washington, DC address (the Washington, DC 20231 address) to an Arlington, VA 22202 address. The USPTO simply provided that the requirement in 37 CFR 1.1 (and 37 CFR 1.8 and 1.10) that patent-related correspondence be addressed to the USPTO's Washington, DC address was suspended subject to the requirement that such correspondence be addressed to the Arlington, VA 22202 address provided on the USPTO's Web site (U.S. Patent and Trademark Office, P.O. Box 2327, Arlington, VA 22202). If the USPTO were to require that patent-related correspondence be addressed to the Arlington, VA 22202



address provided on the USPTO's Web site rather than the Washington, DC 20231 address (as opposed to simply permitting patent-related correspondence to be addressed to the Arlington, VA 22202 address provided on the USPTO's Web site as an alternative to the Washington, DC 20231 address.), the USPTO would need to amend the provisions of 37 CFR 1.1 to make such a change in practice.

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*Is there a question about what the USPTO can or cannot do that you cannot find an answer for? Send questions about USPTO programs and services to the USPTO Contact Center (UCC). You can suggest USPTO webpages or material you would like featured on this section by E-mail to the [webmaster@uspto.gov](mailto:webmaster@uspto.gov). While we cannot promise to accommodate all requests, your suggestions will be considered and may lead to other improvements on the website.*

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Last Modified: 11/15/2003 22:05:26

## APPENDIX "2"

The Official stamp of the United States Patent & Trademark Office hereby acknowledges receipt of the following:

1. New Patent Application w/Declaration/Power
2. Six (6) sheets of drawings (Fig.1-7)
3. Certified Taiwan Application 0891266883 - Dec 13, 2000
4. Check for \$370.00
5. Transmittal sheets in duplicate
6. Acknowledgement psotcard

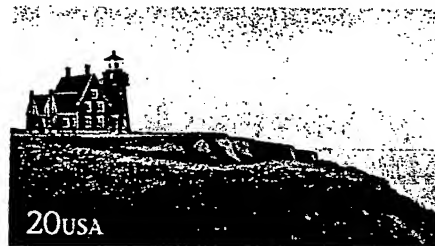
Applicant: Jih Chung CHIANG et, al.

For: Pumping device for helping severe failing of left heart

Date: November 19, 2001

CEGB:DY/12684 B

jc971 U.S. PTO  
10/045379  
01/15/02



HART, BAXLEY, DANIELS & HOLTON  
59 JOHN STREET, FIFTH FLOOR  
NEW YORK, N.Y. 10038

## APPENDIX "3"

## IN THE UNITED STATES PATENT &amp; TRADEMARK OFFICE

Applicant: Jih Chung CHIANC et, al

Docket 12684 B

Serial No:

Art Unit:

Filed:

Examiner:

For: PUMPING DEVICE FOR HELPING SEVERE FAILING OF LEFT VENTRICLE OR HEART

Transmitted herewith is/are the following:

- ☒ New Patent Application w/Declaration/Power of Attorney  
☒ Six (6) sheets of drawings (Fig.1-7)  
☒ Certified Taiwan Application 089126683 - December 13, 2000  
☒ Acknowledgment Postcard

The filing fee has been calculated below:

For:	CALCULATION	BASIC FEES	
		SMALL ENTITY <input checked="" type="checkbox"/>	LARGE ENTITY <input type="checkbox"/>
DESIGN			
UTILITY <input checked="" type="checkbox"/>		\$370.00	\$740.00
TOTAL CLAIMS	<u>2</u> - <u>20</u> = <u>0</u> x	\$9 = <u>0</u>	
INDEPENDENT CLAIMS	<u>1</u> - <u>3</u> = <u>0</u> x	\$42 = <u>0</u>	\$84 = <u>      </u>
MULTIPLE	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	\$140 = <u>--</u>	\$280 = <u>      </u>
TOTALS		\$ 370.00	--

☒ A check in the amount of \$ 370.00 is enclosed.☒ The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account 02-1435. A duplicate of this sheet is enclosed.☒ Any additional filing fees required under 37 CFR 1.16☒ Any patent application processing fees under 37 CFR 1.17☒ The Commissioner is authorized to charge payment of the following fees during pendency of this Application or credit any overpayment to Deposit Account No. 02-1435. This form is submitted in duplicate.☒ Any patent application processing fees under 37 CFR 1.17☐ Any issue fee set in 37 CFR 1.18 at or before a Notice of Allowance is issued.☒ Any filing fees under 37 CFR 1.16 for presentation of extra claims.☒ I hereby certify that this correspondence is being deposited with the United States Postal Service in an envelope addressed to: BOX PATENT Application FEE, Commissioner of Patents & Trademarks, Washington, DC 20231 on November 19, 2001

Respectfully,

CHARLES E. BAXLEY, ESQUIRE  
 Hart, Baxley, Daniels & Holton  
 59 John St, 5 Fl, New York, NY 10038  
 Tel (212) 791-7200 - Fax (212) 791-7276

By:

*Charles E. Baxley*  
 CHARLES E. BAXLEY  
 Attorney of Record  
 USPTO Reg. 20,149

19Nov01 - CEB: dy/12684 B

# DECLARATION FOR PATENT APPLICATION AND APPOINTMENT OF ATTORNEY

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention (Design, if applicable) entitled:

PUMPING DEVICE FOR HELPING SEVERE FAILING OF LEFT VENTRICLE OR HEART

the specification of which (check one):

☒ is attached hereto.

☐ was filed on: as Application Serial No.:

and (if applicable) was amended on:

☐ was filed on: as International Application (PCT) No.:

and (if applicable) was amended on:

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose information which is material to patentability as defined in *Rule 37, Code of Federal Regulations*, §1.56. I hereby claim foreign priority benefits under *Rule 35, United States Code* §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

PRIOR FOREIGN APPLICATION(S)			PRIORITY CLAIMED	
Number	Country	Day/Month/Year Filed	Yes	No
089126683	Taiwan	13, December 2000	✓	

I hereby claim the benefit under *Rule 35, United States Code*, §120 of any United States application(s) or PCT international application(s) designating The United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of *Rule 35, United States Code*, §112, I acknowledge the duty to disclose information which is material to patentability as defined in *Rule 37, Code of Federal Regulations*, §1.56 which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application:

Application Number	Filing Date	Status - Patented, Pending or Abandoned

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under *section 1001 of title 18 of the United States Code* and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: I (We) hereby appoint as my (our) attorneys, with full powers of substitution and revocation, to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

CHARLES E. BAXLEY, PTO REG# 20,149;

I(we) authorize my(our) attorneys to accept and follow instructions from \_\_\_\_\_ regarding any matter related to the preparation, examination, grant and maintenance of this application, any continuation, continuation-in-part or divisional based thereon, and any patent resulting therefrom, until I(we) or my(our) assigns withdraw this authorization in writing.

CHARLES E. BAXLEY

59 John Street-5th Floor

Send correspondence to: New York, N.Y. 10038

Telephone Calls to: (212) 791-7200

FAX: (212) 791-7276

Full Name of First or Sole Inventor	Jih Chung CHIANG	Citizenship	Taiwan
Residence Address	No. 320, Sec. 2, Shiang Shang Road, Taichung, Taiwan 408	Post Office Address	<input type="checkbox"/> Same as Residence No. 320, Sec. 2, Shiang Shang Road, Taichung, Taiwan 408
DATE	SIGNATURE		

## DECLARATION FOR PATENT APPLICATION AND APPOINTMENT OF ATTORNEY

Page 2

Full Name of Joint Inventor Chin Sheng TUNG	Citizenship Taiwan
Residence Address No. 68, Lane 11, Chornng Ming 13th Street, Tainan, Taiwan 701	Post Office Address <input type="checkbox"/> Same as Residence No. 68, Lane 11, Chornng Ming 13th Street, Tainan, Taiwan 701
DATE October 10, 2001	SIGNATURE <i>Chin-Sheng Tung</i>

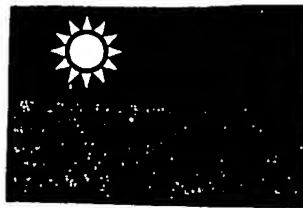
Full Name of Joint Inventor Kevin Kuo Tsai CHENG	Citizenship Taiwan
Residence Address No. 95-38, Jen Her Road, Tainan, Taiwan 701	Post Office Address <input type="checkbox"/> Same as Residence No. 95-38, Jen Her Road, Tainan, Taiwan 701
DATE October 10, 2001	SIGNATURE <i>Kevin Kuo-Tsai Cheng</i>

Full Name of Joint Inventor Shih Hsiung CHEN	Citizenship Taiwan
Residence Address 8F-1, No. 186, Yu Nong 1st Street, Tainan, Taiwan 701	Post Office Address <input type="checkbox"/> Same as Residence 8F-1, No. 186, Yu Nong 1st Street, Tainan, Taiwan 701
DATE October 10, 2001	SIGNATURE <i>Shih-Hsiung Chen</i>

Full Name of Joint Inventor Tzu Min KAO	Citizenship Taiwan
Residence Address No. 18, Da Tong Road, Dou Liow City, Yun Lin Hsien, Taiwan 640	Post Office Address <input type="checkbox"/> Same as Residence No. 18, Da Tong Road, Dou Liow City, Yun Lin Hsien, Taiwan 640
DATE October 10, 2001	SIGNATURE <i>Tzu-Min Kao</i>

Full Name of Joint Inventor Jeng WEI	Citizenship Taiwan
Residence Address No. 19, Lane 177, Da Hu San Chuang Street, Taipei, Taiwan 114	Post Office Address <input type="checkbox"/> Same as Residence No. 19, Lane 177, Da Hu San Chuang Street, Taipei, Taiwan 114
DATE October 10, 2001	SIGNATURE <i>Jeng Wei</i>

Full Name of Joint Inventor Pong Jau LU	Citizenship Taiwan
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申 請 日 期：西元 2000 年 12 月 13 日  
Application Date

申 請 案 號：089126683  
Application No.

申 請 人：江日崇、董金生、鄭國材、陳世雄、高資敏、魏崢  
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Jih Chung CHIANG, Chin Sheng TUNG,  
 Applicant or Patentee: Kevin Kuo Tsai CHENG  
 Serial or Patent Number: \_\_\_\_\_  
 Filed or Issued: \_\_\_\_\_  
 For: PUNMING DEVICE FOR HELPING SEVERE FAILING OF  
 LEFT VENTRICLE OR HEART

Docket #: \_\_\_\_\_  
 Examiner: \_\_\_\_\_  
 Art Unit: \_\_\_\_\_

**VERIFIED STATEMENT (DECLARATION) BY AN INDEPENDENT INVENTOR  
 CLAIMING SMALL ENTITY STATUS UNDER 37 CFR 1.9(F) AND 1.27(B)**

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled PUMPING DEVICE FOR HELPING SEVERE FAILING OF  
 LEFT VENTRICLE OR HEART

by Jih Chung CHIANG, Chin Sheng TUNG, Kevin Kuo Tsai CHENG

described in:

- ☒ The specification filed herewith.  
☐ Patent application serial number \_\_\_\_\_, filed \_\_\_\_\_.  
☐ PCT International patent application number \_\_\_\_\_, filed \_\_\_\_\_.  
☐ Patent number \_\_\_\_\_, issued \_\_\_\_\_.

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Date	October 10, 2001	October 10, 2001	October 10, 2001

Shih Hsiung CHEN, Tzu Min KAO,  
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LEFT VENTRICLE OR HEART

by Shih Hsiung CHEN, Tzu Min KAO, Jeng WEI  
(inventor(s))

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	Inventor 1	Inventor 2	Inventor 3
Name	Shih Hsiung CHEN	Tzu Min KAO	Jeng WEI
Signature	<i>Shih-Hsiung Chen</i>	<i>Tzu-Min Kao</i>	<i>Jeng Wei</i>
Date	October 10, 2001	October 10, 2001	October 10, 2001

Applicant or Patentee: Pong Jeu LU  
 Serial or Patent Number: \_\_\_\_\_  
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 For: PUMPING DEVICE FOR HELPING SEVERE FAILING OF

Docket #: \_\_\_\_\_  
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LEFT VENTRICLE OR HEART

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LEFT VENTRICLE OR HEART

by Pong Jeu LU

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	Inventor 1	Inventor 2	Inventor 3
Name	Pong Jeu LU		
Signature	<i>Pong Jeu Lu</i>		
Date	October 10, 2001		

PUMPING DEVICE FOR HELPING SEVERE FAILING OF  
LEFT VENTRICLE OR HEART

BACKGROUND OF THE INVENTION

1. Field of the Invention

05       The present invention relates to a pumping device,  
and more particularly to a blood pumping device for  
draining the blood out of the left ventricle, and for  
helping recovery of the heart, or for facilitating the  
blood circulation of the patients.

10       2. Description of the Prior Art

As shown in FIGS. 6 and 7, illustrated is a  
typical blood pumping device for pumping the blood out  
of the left ventricle and for helping or facilitating  
the blood circulation of the patients. The blood  
15       pumping device includes a receptacle 1 having a chamber  
10 formed or provided therein, and having an inlet 12  
for coupling to the heart, such as the left ventricle  
of the heart for receiving the blood from the heart and  
for allowing the blood to flow into the chamber 10 of  
20       the receptacle, and having an outlet 11 for coupling to  
the artery, such as the aorta of the patient and for  
allowing the blood to be pumped to flow to the aorta,  
in order to facilitate the blood circulation. Two check  
valves 110, 120 are disposed in the outlet 11 and the  
25       inlet 12 of the receptacle 1 respectively for  
preventing the blood from flowing backward. A resilient  
diaphragm 130 is formed or provided in the receptacle 1

and attached to or extended from the flat bottom surface 13 of the receptacle 1. A tube 14 is formed or provided or attached between the diaphragm 130 and the receptacle 1. A hose 2 may be engaged through the bore 05 140 of the tube 14 and coupled to the space formed by the diaphragm 130 for filling or drawing or pumping an air or a fluid to shrink or to expand the diaphragm 130, and for drawing the blood into the chamber 10 of the receptacle 1 and for pumping the blood in the 10 chamber 10 of the receptacle 1 out to the aorta of the patient.

However, the heart of the patient is required to be punctuated for attaching or for coupling the typical blood pumping device. Furthermore, the typical blood 15 pumping device includes many dead angles or dead portions that the blood may not be pumped out of the receptacle 1. Particularly, the portions around or near the inlet 12 and the outlet 11 of the receptacle 1, and the portions 3 around the tube 14, such that the 20 thrombosis problems may be occurred, and such that the typical blood pumping device is required to be removed from the patient and required to be cleaned or to be replaced with the other ones. In additional, the check valves 110, 120 of the blood pumping device may be 25 easily become fail or may be easily disordered.

The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the

conventional blood pumping devices.

#### SUMMARY OF THE INVENTION

The primary objective of the present invention is to provide a blood pumping device for draining the blood out of the left ventricle and for helping recovery of the heart or for facilitating the blood circulation of the patients.

In accordance with one aspect of the invention, there is provided a blood pumping device comprising a receptacle including a chamber formed therein for receiving blood, and including a non-valved inlet or larger opening for coupling to an aorta of a patient and for receiving blood from the aorta; and including a non-valved outlet or smaller opening for outward flowing of the blood to the femoral artery. The receptacle includes a surface having a peripheral portion and having a port provided therein, a resilient diaphragm is received in the chamber of the receptacle and includes a peripheral portion coupled to the peripheral portion of the surface of the receptacle. The diaphragm may be expanded to pump the blood into the chamber of the receptacle and to drain the blood in the chamber of the receptacle out of the inlet or larger opening and the outlet or smaller opening of the receptacle.

The pumping means includes a pump coupled to the port of the receptacle for deflating the diaphragm to

draw the blood into the chamber of the receptacle, and for expanding the diaphragm to force and to pump the blood in the chamber of the receptacle out of the inlet opening and the outlet opening of the receptacle.

05        Further objectives and advantages of the present invention will become apparent from a careful reading of a detailed description provided hereinbelow, with appropriate reference to accompanying drawings.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

10        FIG. 1 is a perspective view of a blood pumping device in accordance with the present invention;

FIG. 2 is a cross sectional view taken along lines 2-2 of FIG. 1;

15        FIG. 3 is a schematic view illustrating the engagement or the attachment of the blood pumping device in the human body;

FIG. 4 is a partial cross sectional view illustrating the engagement or the attachment of the blood pumping device to the aorta of the human body;

20        FIG. 5 is a partial cross sectional view similar to FIG. 4, illustrating the operation of the blood pumping device or the operation of the diaphragm;

FIG. 6 is a perspective view showing a typical blood pumping device; and

25        FIG. 7 is a cross sectional view taken along lines 7-7 of FIG. 6, for showing the inner structure of the typical blood pumping device.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, and initially to FIGS. 1-4, a blood pumping device in accordance with the present invention comprises a receptacle 4 including a chamber 40 formed or provided therein for receiving blood, and including an inlet or a larger opening 44 for coupling to the ascending aorta and for receiving the blood from the ascending aorta and for allowing the blood to flow into the chamber 40 of the receptacle. For example, as shown in FIGS. 3-5, a hose 440 may be used to couple the inlet or the larger opening 44 of the receptacle 4 to the aorta 60, such as the portion of the aorta 60 that is located between the heart 6 and the aortic arch 63, and particularly between the heart 6 and the innominate artery 64 that is coupled to the aortic arch 63.

The receptacle 4 includes an outlet or a smaller opening 45 for coupling to the artery, such as the femoral artery 61 of the patient and for allowing the blood to be pumped to flow to the femoral artery 61, in order to facilitate the blood circulation. It is to be noted that no check valves are required to be provided or disposed in the outlet or the smaller opening 45 and the inlet or the larger opening 44 of the receptacle 4. A check valve 8 is required to be disposed in the aorta 60 for preventing the blood from flowing backward from the aortic arch 63 to the aorta 60, and for allowing



the blood to be pumped to flow into the aortic arch 63 only. The common femoral artery may be snared to decrease blood from flowing backward through the outlet or the smaller opening 45 to the receptacle 4.

05       The receptacle 4 includes a flat peripheral surface or a flat bottom or side surface 41 having a port 42 formed or provided therein. A capsule or an envelope or a rubber or resilient diaphragm 43 is formed or provided in the receptacle 4 and attached to  
10 or extended from the flat surface 41 of the receptacle 4. The diaphragm 43 includes a space 430 formed or provided therein, and includes a peripheral portion 431 coupled to or secured to the peripheral portion 411 of the surface 41, for example. A pump, such as a hand  
15 pump 7 or the like (FIG. 3) is coupled to the port 42 of the receptacle 4 with a hose 5, for filling or drawing or pumping an air or a fluid into or out of the space 430 formed or surrounded by the diaphragm 43, and for drawing the blood into the chamber 40 of the  
20 receptacle 4 from the aorta 60, and for pumping the blood in the chamber 40 of the receptacle 4 out to the aorta and femoral artery 61 of the patient.

In operation, as shown in FIG. 3, the hand or other pumps 7 may draw or pump the air or the fluid to  
25 deflate the diaphragm 43, or to expand the diaphragm 43 (FIG. 5), such that the blood may be drawn from the aorta 60 into the chamber 40 of the receptacle 4. The

check valve 8 in the aorta 60 may prevent the blood from flowing backward from the aortic arch 63 to the aorta 60, and the aortic semilunar valve 66 may be used to prevent the blood from flowing backward from the  
05 aorta 60 to the heart 6 and allows the blood to flow out of the left ventricle of the heart 6 only. The common femoral artery 61 may be snared during operation to decrease the amount of blood from backward flowing to the receptacle 4, such that the blood may be  
10 effectively drawn from the left ventricle of the heart 6 into the receptacle 4 when the diaphragm 43 is deflated.

As shown in FIG. 4, when the diaphragm 43 is inflated by the hand or the other pumps 7 which may  
15 force or pump the air or the fluid, through the hose 5, into the space 430 enveloped by the diaphragm 43, to expand the diaphragm 43. The blood in the chamber 40 of the receptacle 4 may thus be forced to flow out of the receptacle 4 and to flow into the aortic arch 63 and  
20 the femoral artery 61. The aortic semilunar valve 66 may prevent the blood from flowing backward from the aorta 60 into the left ventricle of the heart 6 at this moment, and the check valve 8 in the aorta 60 allows the blood to flow into the aortic arch 63 and the  
25 innominate artery 64. Accordingly, the blood in the chamber 40 of the receptacle 4 may be effectively forced or pumped, by the diaphragm 43, to flow out of

the receptacle 4 and to flow into the aortic arch 63 and the femoral artery 61 when the diaphragm 43 is expanded.

05 The blood pumping device includes no dead angles or dead portions. The blood in the chamber 40 of the receptacle 4 may be effectively forced or pumped out of the receptacle 4.

10 Accordingly, the blood pumping device in accordance with the present invention may be used to help draining the blood out of the left ventricle and for helping recovery of the heart or for facilitating the blood circulation of the patients.

15 Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that numerous changes in the detailed construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter  
20 claimed.

I CLAIM:

1. A blood pumping device comprising:

a receptacle including a chamber formed therein for receiving blood, and including a non-valved inlet opening for coupling to an aorta of a patient and for  
05 receiving blood from said aorta, and including a non-valved outlet opening for outward flowing of the blood, said receptacle including a surface having a peripheral portion and having a port provided therein,

a diaphragm received in said chamber of said  
10 receptacle, and including a space formed therein and including a peripheral portion coupled to said peripheral portion of said surface of said receptacle, and

means for pumping said diaphragm to draw the blood  
15 into said chamber of said receptacle and to pump the blood in said chamber of said receptacle out of said inlet opening and said outlet opening of said receptacle.

2. The blood pumping device according to claim 1, wherein said pumping means includes a pump coupled to said port of said receptacle for shrinking said diaphragm to draw the blood into said chamber of said  
05 receptacle, and for expanding said diaphragm to force and to pump the blood in said chamber of said receptacle out of said inlet opening and said outlet opening of said receptacle.

## ABSTRACT

A blood pumping device includes a receptacle for receiving blood and having a non-valved inlet and outlet openings coupled to an aorta and the femoral artery. The receptacle includes a surface having a peripheral portion coupled to a peripheral portion of a diaphragm, and having a port coupled to a pump. The pump may shrink the diaphragm to draw the blood into the receptacle and may expand the diaphragm to pump the blood in the chamber of the receptacle out of the inlet opening and the outlet opening of the receptacle and into the aorta and the femoral artery of the patient.

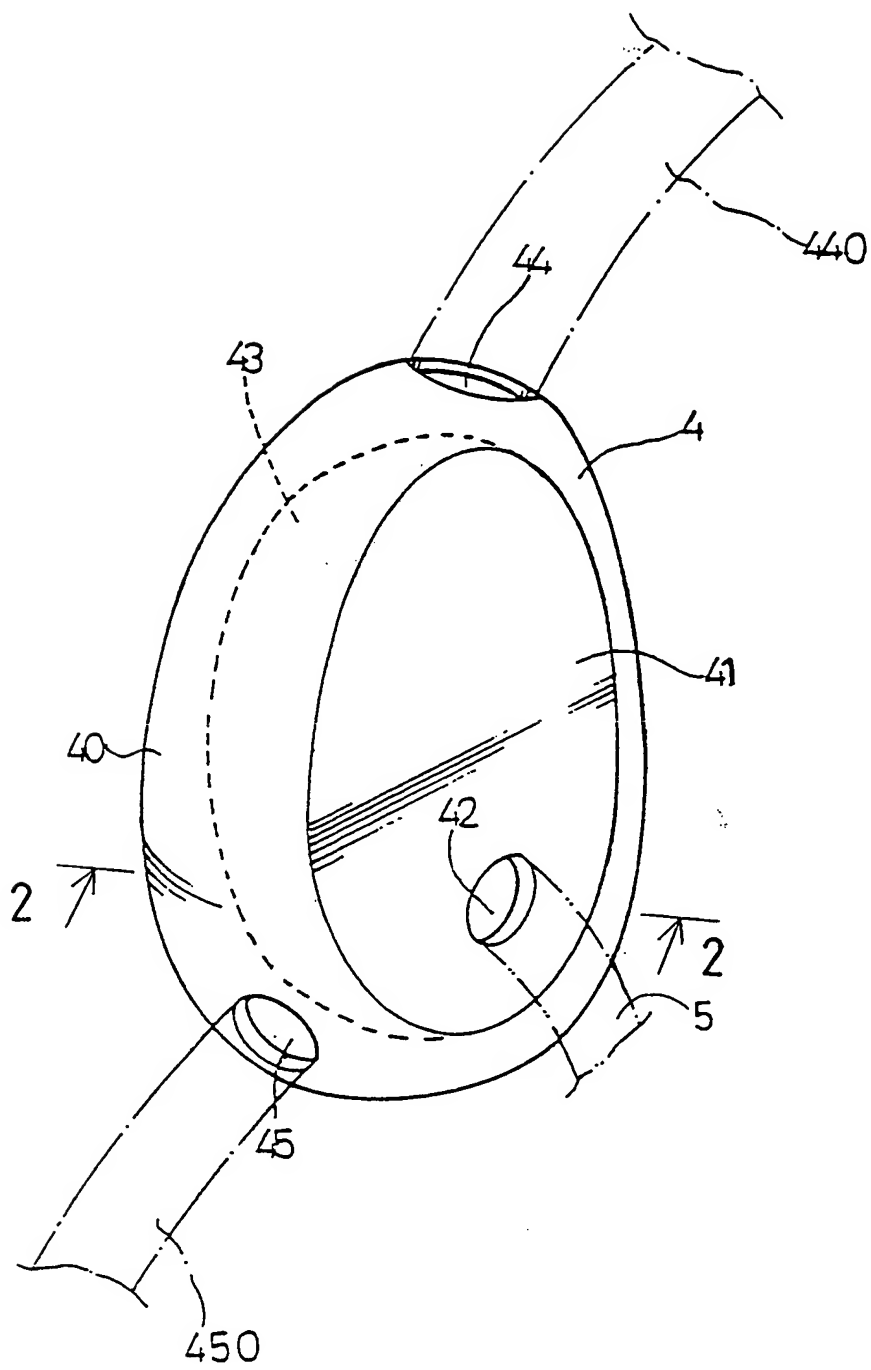


FIG. 1

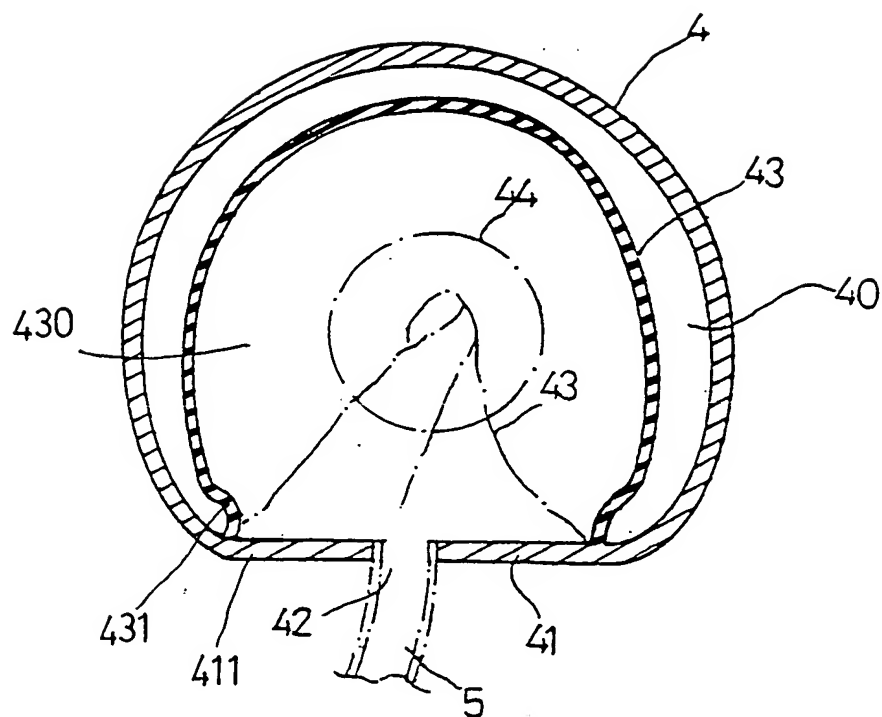


FIG. 2

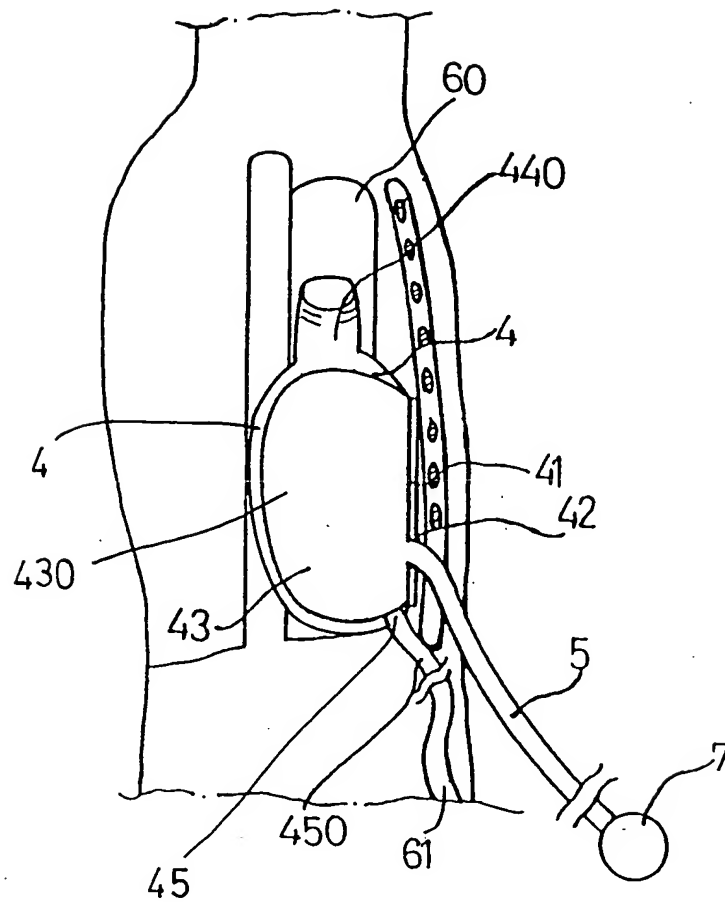


FIG. 3



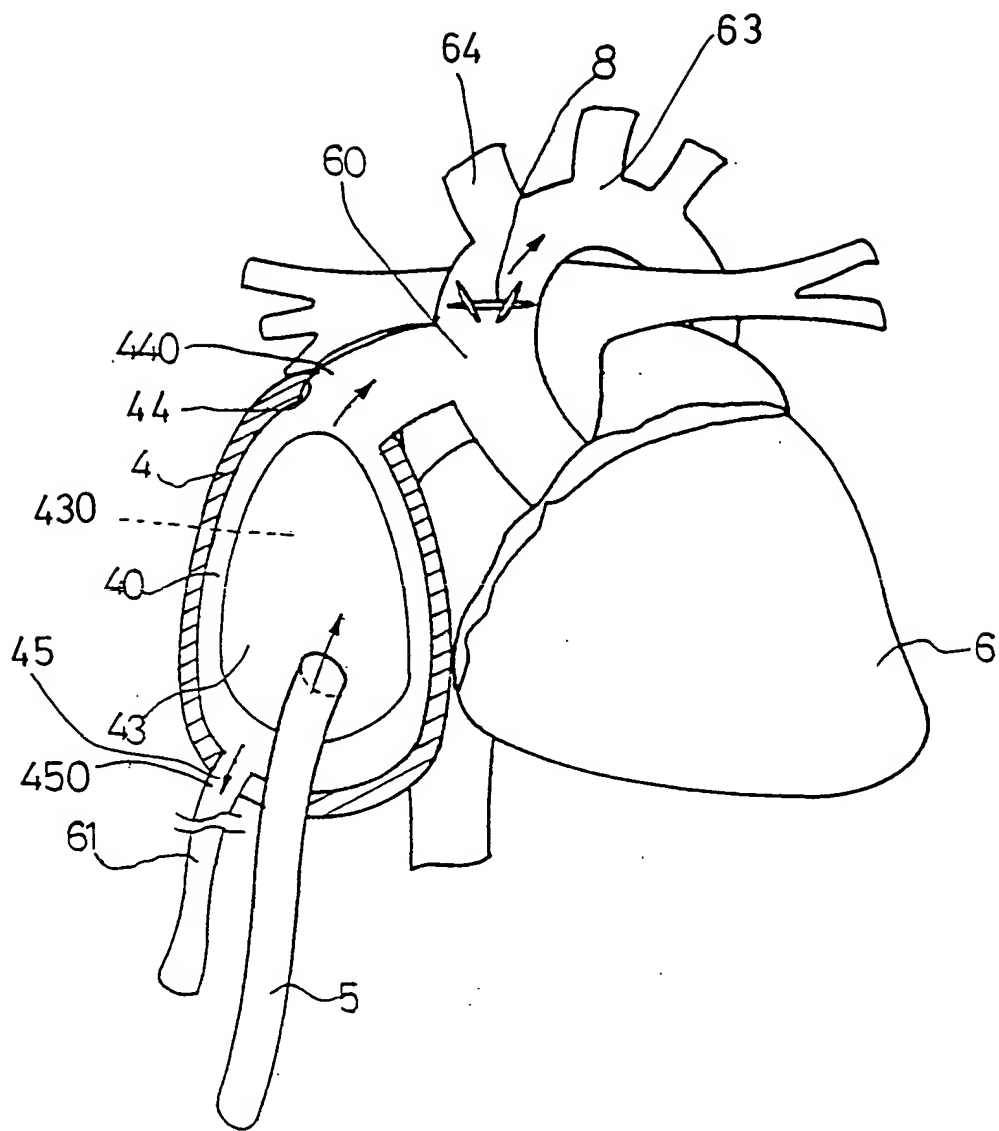


FIG. 4

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